The HPV Vaccine: Should Immunization be Mandated?

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The Human Papillomavirus, otherwise known as HPV, is the most common viral Sexually Transmitted Infection (STI) in the United States (Zonfrillo and Hackley, 2008). Cervical cancer is the second most common cause of cancer mortality among women worldwide, causing approximately 10 deaths each day in the United States alone (Miksis, 2008). The HPV virus has been proven to be responsible for the occurrence of cervical cancers throughout the world (Vamos, McDermott, & Daley, 2008). The "etiologic link" between HPV and cervical cancer is one of the most firmly established relationships identified in cancer epidemiology. In a large, international study, the DNA for HPV was detected in 99.7% of cervical cancer samples (Miksis, 2008).

The HPV vaccine (Gardasil) has the potential to significantly reduce morbidity and mortality associated with cervical disease. This vaccine is designed to eliminate the possibility of acquiring the HPV virus, which can only be contracted from having sexual intercourse with someone who is already infected with the virus.

State legislatures across the nation have been considering whether to make HPV vaccination a prerequisite for school entry. This legislation has become a source of controversy between the legislators and the parents of school-aged girls (Vamos, 2008 & Stewart, 2008). This controversy has created a dilemma between the law, the right to personal autonomy, and the importance of public health (Stewart, 2008). The purpose of this paper is to discuss the implications of mandating the HPV vaccination.

Review of Literature

While most strains of HPV are harmless, some increase a women's chance of developing cervical cancer (Casper & Carpenter, 2008). HPV infection has the highest incidence in the late

teens to early twenties and in the 5 to 10 year period following the first sexual experience (Ershler, 2007). An estimated 20 million Americans have been infected with HPV, with an estimated 6.2 million new infections each year (Vamos et al., 2008). Between 80-85% of sexually active people will contract HPV at some point in their life (Theroux, 2008). The majority of individuals (approximately 70%) with new HPV infections will spontaneously clear the virus within one year without significant immune system activation (Miksis, 2008). Those who fail to clear the infection are the ones who develop the persistent infection which can lead to cervical cancer (Gray, 2008). Infection with HPV normally develops within the first 2 years of sexual activity, and the majority of HPV infections are asymptomatic and transient. (Stewart, 2008; Miksis, 2008).

Although the most serious complication of HPV is the development of cervical cancer, other potential complications of HPV include the development of precancerous lesions of the cervix, vagina, or anal area (Ali & Forcello, 2008). Over 40 types of HPV have been linked to genital warts or cervical cancer (Zonfrillo & Hackley, 2008). These 40 types are divided into low-risk and high-risk groups. Low risk HPV causes genital warts, whereas persistent infection with high risk HPV is the primary cause of cervical cancer (Vamos et al., 2008; Miksis, 2008).

Cervical cancer is often detected only through routine screening, which many women cannot or do not receive, so prevention is critical (Casper & Carpenter, 2008). The groups most at risk for cervical cancer are Hispanics, followed by African Americans. It is believed these groups have the highest risk because both cultures tend to become sexually active at an earlier age than Caucasians (Casper & Carpenter, 2008). Other associated factors for the development of cervical cancer are persons with low socioeconomic status, those who are uninsured, those

with no regular healthcare access, and immigrants. The causal link is that these groups are less likely to receive routine pap smears (Vamos et al., 2008).

Gardasil, the HPV vaccine, was approved by the US Food and Drug Administration (FDA) in 2006 and has been found completely effective in preventing the development of 70% of cervical abnormalities and 90% of genital warts (Casper & Carpenter, 2008). Gardasil is given in three vaccines over the course of six months (Casper & Carpenter, 2008).

The Advisory Committee on Immunization Practices of Adolescents recommends the HPV vaccine be routinely administered to all 11-12 year old females as well as "catch-up immunizations" for 13-26 year olds who have not previously received the vaccine, regardless of sexual experience. (Rosenthal et al., 2008; Theroux, 2008). The recommended age for receiving the HPV shot is 11-12 because of their high levels of immunological antibody response, in comparison to older women because this population is most likely still attending a "well-child" clinic where they can receive the vaccine, they are still unlikely to become sexually active and thus more likely to be protected into their later teen years when they do become susceptible after initiation of sexual behaviors (Rosenthal et al., 2008). It is because studies show that by age 17, more than 60% of teenagers have had sex and that the vaccine is more efficacious among women who have not yet had intercourse, that the recommendation for earlier vaccination is made. The recommendation is further supported by the study finding that Gardasil was 99% effective in preventing cervical cancer and precancerous lesions in women who had never had vaginal sex, but only 44% effective in sexually experienced women (Casper & Carpenter, 2008).

There are relatively few side effects caused by the vaccine, and it has been found that the drug is well-tolerated without severe adverse effects. The side effects that do exist are minor and

include symptoms such as localized itching, swelling, headache, fever, nausea, or injection site soreness (Casper & Carpenter, 2008; Miksis, 2008).

The Gardasil vaccine should be required for all 11-12 year old girls to significantly reduce the incidence of cervical cancer. It is crucial that all girls in this age range capable of receiving the vaccine obtain it; even those sexually experienced, because these women are still likely to be susceptible to some, if not all vaccine-preventable types of cervical cancer (Rosenthal et al., 2008). The vaccine should be mandated since it has been found almost 100% effective in preventing the four strains of HPV responsible for 70% of cervical cancers and 90% of genital warts (Vamos et al.,2008)

The opposition of mandatory vaccination has referred to Gardasil as the "promiscuity vaccine," and believes it "sabotages the abstinence message." That view ignores that the vaccine is a preventive measure (Casper & Carpenter, 2008). Furthermore, one of the most important factors in influencing sexual activity among adolescents is parental acceptance. Parents are more influential than peers in determining the age of onset of intercourse (Vamos et al., 2008). The Center for Disease Control and Prevention (CDC) reports that it is unlikely that this vaccine will change the onset and frequency of sexual activity in girls, given that it is the parents, themselves, that impact the decisions to first have intercourse (Vamos et al., 2008).

The HPV vaccine itself is costly (about $360 for the three shot series), yet could prove cost effective. Vaccinating all 11-12 year old girls in the country against HPV could prevent more than 1300 deaths. Another cost saved is the negative emotional and psychological reactions women experience from receiving an abnormal pap smear result and the invasive procedures they must then undergo to remove the precancerous lesions or cancerous cells (Vamos et al., 2008).

If the vaccine does become mandatory, parents will most likely have the option to "opt out" of the vaccine due to conscience, moral, or religious reasons. It is also imperative that should the vaccine become mandatory, it be accompanied by education, including that abstinence is the only 100% effective method of preventing pregnancy and STI's (Vamos et al., 2008).

Conclusion

The HPV virus is the most common STI in the world, and the Gardasil vaccine can help to diminish this statistic. This HPV vaccine has the potential to assist in eradicating cervical cancer and most cases of genital warts. Girls ages 11-12 are the best candidates for receiving the vaccine, both because of their robust antibody response, in comparison to teenagers, and because they are more likely to be sexually inactive. The vaccine is given in three doses over six months and has very few side effects.

If this vaccine becomes mandatory, nurses providing the vaccine will need to educate their patients on sexual safety, including the fact that abstinence is the only absolute way to avoid pregnancy and contracting STI's, as well as the importance of condom use for those who are sexually active. Nurses will also need to remind patients that they still need to schedule routine exams to screen for other gynecological conditions.

This paper has forced me to learn how important the Gardasil vaccine is and what an advancement its mandatory use would potentially provide in the ongoing cure for cancer. After reading several articles surrounding the HPV vaccine debate, it has become clear that there should be mandated immunization for all 11-12 year old girls. Before reading the articles, the only reason I knew for not mandating the vaccine was the risk it would spur the early onset of sexual activity in girls. Since the CDC has found this is a highly unlikely proposition, I now completely support a mandate of the HPV vaccination.

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